

An Integration Platform for Dual-Polarized W-Band Antenna Arrays, Phase I

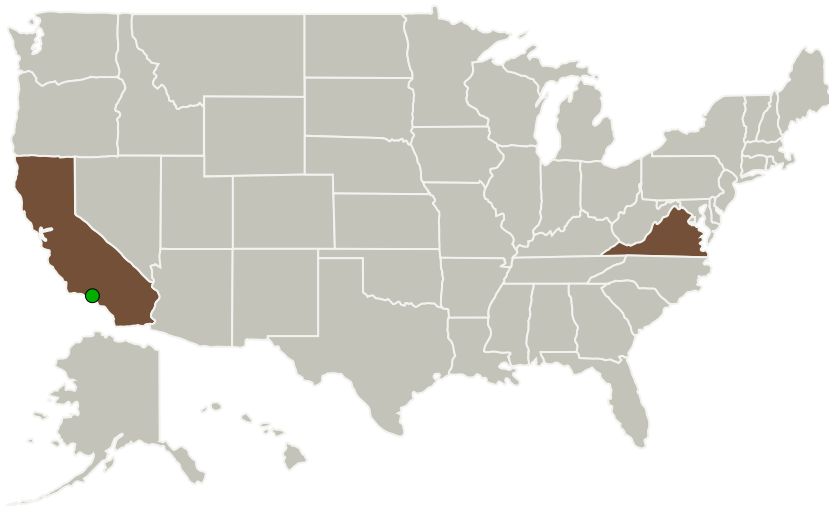
Completed Technology Project (2012 - 2012)




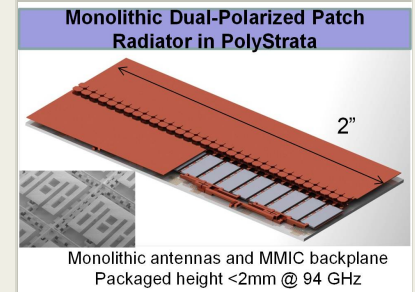
Project Introduction

A few NASA decadal missions such as the Aerosol Clouds Ecosystems (ACE) mission require space-based millimeter-wave radar apertures to complete the science objectives. We propose to create dual-polarized microfabricated copper-based antenna apertures with integrated MMICs that go beyond the capabilities funded to date at the upper frequencies of interest by enabling electronic scanning at W-band frequencies, while not precluding the co-location of Ka-band capability in the same aperture. This Phase I effort will constitute element-, feed-, MMIC-, and array-level analyses of the trade space for the proposed aperture. In addition we will provide a hardware demonstration of MMIC integration on the necessary scale for W-band phased arrays and high-efficiency dual polarized antenna elements. The Phase II effort would integrate MMIC functionality with the antennas to create an array tile that will be fully characterized.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Nuvotronics, Inc	Lead Organization	Industry	Radford, Virginia
 Jet Propulsion Laboratory(JPL)	Supporting Organization	NASA Center	Pasadena, California



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Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Project Transitions	2
Images	2
Organizational Responsibility	2
Project Management	2
Technology Maturity (TRL)	2
Technology Areas	3
Target Destinations	3

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Primary U.S. Work Locations

California

Virginia

Project Transitions

February 2012: Project Start

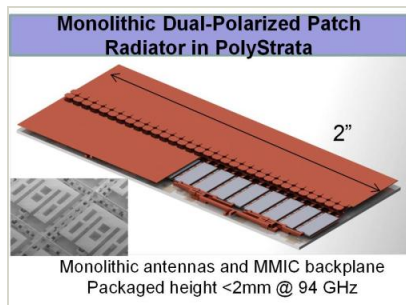
August 2012: Closed out

Closeout Summary: An Integration Platform for Dual-Polarized W-Band Antenna Arrays, Phase I Project Image

Closeout Documentation:

- Final Summary Chart Image(<https://techport.nasa.gov/file/140276>)

Images



Briefing Chart Image

An Integration Platform for Dual-Polarized W-Band Antenna Arrays, Phase I
(<https://techport.nasa.gov/image/132529>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Nuvotronics, Inc

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

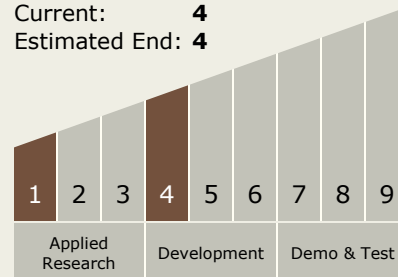
Carlos Torrez

Principal Investigator:

Ken Vanhille

Technology Maturity (TRL)

Start: **1**
Current: **4**
Estimated End: **4**



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Technology Areas

Primary:

- TX08 Sensors and Instruments
 - └ TX08.1 Remote Sensing Instruments/Sensors
 - └ TX08.1.4 Microwave, Millimeter-, and Submillimeter-Waves

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System